

# SOLVENT METAL CLEANING REQUIREMENTS

(Items written in **bold** print in the charts are a result of the revisions made to this standard.)

## *COLD CLEANERS (Parts Cleaners)*

	OUTSIDE THE OZONE NONATTAINMENT AREA	INSIDE THE OZONE NONATTAINMENT AREA
		(Requirements are the same as Outside the Ozone Nonattainment Area with the following modifications.)
Equipment Standards	<p>Equip the degreaser with a cover. Design the cover so that it can be easily operated with one hand if the solvent volatility is greater than 2 kPa <u>or</u> if the solvent is agitated <u>or</u> if the solvent is heated.</p> <p>Equip the degreaser with a facility for draining cleaned parts. Construct it internally so parts are enclosed while draining if the solvent volatility is greater than 4.3 kPa, except if an internal type cannot fit into the cleaner.</p>	<p>Equipment Standards are the same as outside the ozone nonattainment area, with the following modification: <b>Design the cover to be a type that slides off horizontally without disturbing the vapor layer if the solvent volatility is greater than 2 kPa <u>or</u> if the solvent is agitated <u>or</u> if the solvent is heated.</b></p>
Pollution Control Device Requirements	<p>If solvent volatility is greater than 4.3 kPa, or if the solvent is heated above 120 degrees, install either:</p> <ol style="list-style-type: none"> <li>1. A freeboard with freeboard ratio greater than or equal to 0.70;</li> <li>2. A water cover; or</li> <li>3. Other equivalent system approved by DNR.</li> </ol>	<p>If solvent volatility is greater than 4.3 kPa, or if the solvent is heated above 120 degrees, install either:</p> <ol style="list-style-type: none"> <li>1. <b>A freeboard with freeboard ratio greater than or equal to 1.0;</b></li> <li>2-3. Same as outside the ozone nonattainment area.</li> </ol>
Operating Requirements	<p>If a solvent spray is used, spray with a solid fluid stream (not atomized) and prevent splashing.</p> <p>Provide a label stating the following operating requirements and provide supervision or instruction to ensure that the operation is conducted as follows:</p> <ol style="list-style-type: none"> <li>1. Close the cover when parts are not being handled in the degreaser;</li> <li>2. Drain parts for at least 15 seconds or until dripping ceases;</li> <li>3. Store waste solvent only in covered containers and do not dispose of it or transfer it to another person in such a way as to cause greater than 15% of the waste solvent (by weight) to evaporate into the ambient air during the ozone season. Disposal of more than 1.5 gallons of any liquid VOC waste, or of any waste material containing more than 1.5 gallons of VOC, from a facility in any one day during the ozone season must be done in a manner that does not permit evaporation into the ambient air; and</li> <li>4. Repair solvent leaks immediately, or shut down the degreaser until the leaks are repaired.</li> </ol>	<p>All Operating Requirements are the same as outside the ozone nonattainment area.</p>

## *Open Top (Batch) Vapor Degreasers*

	OUTSIDE THE OZONE NONATTAINMENT AREA	INSIDE THE OZONE NONATTAINMENT AREA (Requirements are the same as Outside the Ozone Nonattainment area with the following modifications.)
Equipment Standards	Equip the degreaser with a cover that doesn't disturb the vapor zone.	Equip the degreaser with a cover that doesn't disturb the vapor zone. <b>The cover must slide off horizontally without disturbing the vapor layer, and must open only when the dry part is actually entering or exiting. If the degreaser opening is larger than 21.6 sqft, then design the cover to be mechanically assisted.</b>
Pollution Control Device Requirements	<p>Install either:</p> <ol style="list-style-type: none"> <li>1. A freeboard with freeboard ratio greater than or equal to 0.75 (with a mechanically assisted cover if the degreaser opening is greater than 10.8 sqft);</li> <li>2. A refrigerated freeboard chiller;</li> <li>3. An enclosed design (cover or door opens only when the dry part is actually entering or exiting the degreaser);</li> <li>4. Ventilation greater than or equal to 50 cuft/min/sqft of air-vapor area (when cover is open), all passing through a carbon adsorption system which exhausts less than 25 parts per million of solvent averaged over one complete adsorption cycle; or</li> <li>5. Other equivalent system approved by DNR.</li> </ol> <p>Provide the following safety switches:</p> <ol style="list-style-type: none"> <li>1. A condenser flow switch for coolant temperature;</li> <li>2. A thermostatic control switch for vapor level; and</li> <li>3. A spray safety switch which for vapor level.</li> </ol>	<p>Install either:</p> <ol style="list-style-type: none"> <li>1. <b>A freeboard with freeboard ratio greater than or equal to 1.0 (with a mechanically assisted cover if the degreaser opening is greater than 10.8 sqft);</b></li> <li>2-5. Same as outside the ozone nonattainment area.</li> </ol> <p>Requirement for safety switches also is the same as outside the ozone nonattainment area.</p>

Continued on page 6

## *Open Top (Batch) Vapor Degreasers (cont.)*

<p>Operating Requirements</p>	<p>Do not position ventilation fans so as to disturb the degreaser's vapor zone.</p> <p>Provide a label stating the following operating requirements and provide supervision or instruction to ensure that all the following operating requirements are conducted:</p> <ol style="list-style-type: none"> <li>1. Keep the cover closed except when processing workloads through the degreaser;</li> <li>2. Always spray below the vapor level;</li> <li>3. Minimize solvent carryout by: <ul style="list-style-type: none"> <li>- Racking parts to allow complete drainage,</li> <li>- Moving parts in and out at less than 11 ft/min,</li> <li>- Holding parts in the vapor zone at least 30 sec.</li> <li>- Tipping out any pools of solvent on parts before removing them from the vapor zone, and</li> <li>- Allowing parts to dry within the degreaser for at least 15 seconds or until visually dry;</li> </ul> </li> <li>4. Do not degrease porous or absorbent materials;</li> <li>5. Move parts in and out at less than 4.9 ft/min if the workload occupies 50% or more of the open area;</li> <li>6. Except where a load cannot be divided, avoid loading the degreaser to the point where the vapor level would drop more than 4 inches when the workload is placed in the vapor zone;</li> <li>7. Do not operate the degreaser as to allow water to be visually detectable in solvent exiting the water separator;</li> <li>8. Store waste solvent only in covered containers and do not dispose of it or transfer it to another person in such a way as to cause greater than 15% of the waste solvent (by weight) to evaporate into the ambient air during the ozone season. Disposal of more than 1.5 gallons of any liquid VOC waste, or of any waste material containing more than 1.5 gallons of VOC, from a facility in any one day during the ozone season must be done in a manner that does not permit evaporation into the ambient air; and</li> <li>9. Repair solvent leaks immediately, or shut down the degreaser until the leaks are repaired.</li> </ol>	<p>All Operating Requirements are the same as outside the ozone nonattainment area, with the following addition:</p> <p><b>At startup, turn on the refrigerated condenser and the refrigerated freeboard chiller either simultaneously with or before turning on the sump heater. At shutdown, turn off the sump heater either simultaneously with or before turning off the refrigerated condenser and refrigerated freeboard chiller.</b></p>
-------------------------------	--	---



## *Conveyorized Vapor Degreasers*

	OUTSIDE THE OZONE NONATTAINMENT AREA	INSIDE THE OZONE NONATTAINMENT AREA (Requirements are the same as Outside the Ozone Nonattainment Area with the following modifications.)
Equipment Standards	<p>Minimize entrance and exit openings of degreaser so no opening exceeds the smallest possible opening by more than 8 inches or 20% of size, whichever is smaller.</p> <p>Provide downtime covers for closing off the entrance and exit during shutdown hours. Use them immediately after the conveyors and exhausts are shut down; do not remove them until just before startup.</p>	<p>Equipment Standards are the same as outside the ozone nonattainment area, with the following modification:</p> <p>Minimize entrance and exit openings of degreaser so <b>no opening exceeds the smallest possible opening by more than 4 inches or 10% of size, whichever is smaller.</b></p>
Pollution Control Device Requirements	<p>Install either:</p> <ol style="list-style-type: none"> <li>1. A refrigerated freeboard chiller;</li> <li>2. Ventilation greater than or equal to 50 cuft/min/sqft of air-vapor area (when cover is open), passing through a carbon adsorption system which exhausts less than 25 parts per million of solvent averaged over one complete adsorption cycle; or</li> <li>3. Other equivalent system approved by DNR.</li> </ol> <p>Provide the following safety switches:</p> <ol style="list-style-type: none"> <li>1. A condenser flow switch for coolant temperature;</li> <li>2. A thermostatic control switch for vapor level; and</li> <li>3. A spray safety switch which for vapor level.</li> </ol>	<p>All Pollution Control Device Requirements are the same as outside the ozone nonattainment area.</p>
Operating Requirements	<p>Minimize carryout emissions by:</p> <ol style="list-style-type: none"> <li>1. Using a drying tunnel, tumbling basket, or the equivalent;</li> <li>2. Racking parts for best drainage; and</li> <li>3. Maintaining the vertical conveyor speed at less than 11 ft/min.</li> </ol> <p>Store waste solvent only in covered containers and do not dispose of it or transfer it to another person in such a way as to cause greater than 15% of the waste solvent (by weight) to evaporate into the ambient air during the ozone season. Disposal of more than 1.5 gallons of any liquid VOC waste, or of any waste material containing more than 1.5 gallons of VOC, from a facility in any one day during the ozone season must be done in a manner that does not permit evaporation into the ambient air.</p> <p>Repair solvent leaks immediately, or shut down the degreaser until the leaks are repaired.</p> <p>Do not position ventilation fans so as to disturb the degreaser's vapor zone.</p> <p>Do not operate the degreaser as to allow water to be visually detectable in solvent exiting the water separator.</p>	<p>All Operating Requirements are the same as outside the ozone nonattainment area, with the following additions:</p> <p><b>Provide a label stating operating requirements and provide supervision or instruction to ensure that the operation is conducted appropriately.</b></p> <p><b>At startup, turn on the refrigerated condenser and the refrigerated freeboard chiller either simultaneously with or before turning on the sump heater. At shutdown, turn off the sump heater either simultaneously with or before turning off the refrigerated condenser and refrigerated freeboard chiller.</b></p>



## *Conveyorized Non-Vapor Degreasers*

	OUTSIDE THE OZONE NONATTAINMENT AREA	INSIDE THE OZONE NONATTAINMENT AREA (Requirements are the same as Outside the Ozone Nonattainment Area with the following modifications.)
Equipment Standards	<p>Minimize entrance and exit openings of degreaser so no opening exceeds the smallest possible opening by more than 8 inches or 20% of size, whichever is smaller.</p> <p>Provide downtime covers for closing off the entrance and exit during shutdown hours. Use them immediately after the conveyors and exhausts are shut down; do not remove them until just before startup.</p>	<p>Equipment Standards are the same as outside the ozone nonattainment area, with the following modification:</p> <p>Minimize entrance and exit openings of degreaser so <b>no opening exceeds the smallest possible opening by more than 4 inches or 10% of size, whichever is smaller.</b></p>
Pollution Control Device Requirements	<p>Install either:</p> <ol style="list-style-type: none"> <li>1. A carbon adsorption system demonstrated to have at least a 95% control efficiency, measured across the carbon adsorption equipment and averaged over a complete adsorption cycle; or</li> <li>2. Other equivalent system approved by DNR.</li> </ol>	<p>All Pollution Control Device Requirements are the same as outside the ozone nonattainment area.</p>
Operating Requirements	<p>Minimize carryout emissions by:</p> <ol style="list-style-type: none"> <li>1. Using rollers to remove excess solvent in strip cleaning operations; or</li> <li>2. Arranging parts for best drainage in mesh belt cleaning operations and other conveyorized non-vapor degreasing operations.</li> </ol> <p>Store waste solvent only in covered containers and do not dispose of it or transfer it to another person in such a way as to cause greater than 15% of the waste solvent (by weight) to evaporate into the ambient air during the ozone season. Disposal of more than 1.5 gallons of any liquid VOC waste, or of any waste material containing more than 1.5 gallons of VOC, from a facility in any one day during the ozone season must be done in a manner that does not permit evaporation into the ambient air.</p> <p>Repair solvent leaks immediately, or shut down the degreaser until the leaks are repaired.</p>	<p>All Operating Requirements are the same as outside the ozone nonattainment area, with the following addition:</p> <p><b>Provide a label stating operating requirements and provide supervision or instruction to ensure that the operation is conducted appropriately.</b></p>





## *Wipe Cleaning Operations*

	OUTSIDE THE OZONE NONATTAINMENT AREA (Wipe Cleaning operations are not regulated outside the ozone nonattainment area.)	INSIDE THE OZONE NONATTAINMENT AREA
Equipment Standards		Immediately after use, place and store all rags or other porous materials used to apply solvent in a covered container that is labeled as waste solvent.
Pollution Control Device Requirements		Use either: <ol style="list-style-type: none"> <li>1. A carbon adsorption system demonstrated to have at least a 90% capture efficiency and a 90% control efficiency, measured across the carbon adsorption equipment and averaged over a complete adsorption cycle;</li> <li>2. A solvent with a volatility less than 2 kPa (0.3 psia); or</li> <li>3. Other equivalent system approved by DNR.</li> </ol>
Operating Requirements		Do not allow solvent to drip from the applicator during application.  Provide a label stating operating requirements and provide supervision or instruction to ensure that the operation is conducted appropriately.

*For more information on Wipe Cleaning regulations, see the publication **Facts About Metal Wipe Cleaning RACT**, available from the Small Business Clean Air Assistance Program.*